



Planning Your Vacation to the Lake

Introduction

Imagine you are planning your family's summer vacation to the lake... Ahhh! Watching the fish feeding in the evening, going on a sunset canoe trip, and listening to the loons singing while you are roasting marshmallows over the campfire. And the fishing, swimming, and water skiing out on the lake during the day are fabulous! It's the perfect vacation!

But only if you plan to go to the lake at the right time of the summer... The lake has been known to turn green sometime during the summer, and you need to find out when. Your family will be very upset with you if they have to swim in the green algae slime and that will ruin everyone's vacation!

To find out when the water is clearest in your lake, you will need to download and graph water transparency data from PEARL (Public Educational Access to Environmental Information in Maine) found on the web at <http://www.pearl.maine.edu>

Background

1. Log onto the internet and go to PEARL.
2. Click on Glossary and look up

ALGAE, ALGAE BLOOM, SECCHI DISK, and SECCHI DISK TRANSPARENCY

Under SECCHI DISK TRANSPARENCY - follow the "Click here for More Information." You will end up at the "What does it mean?" page. Click on "Secchi Disk" to learn more about how water clarity is measured and what the data tells you.

Part 1 Downloading Data

1. Now you want to look up information for your vacation lake. Click on "Text Search" located on the left-side menu bar. On the next page, type in the name of your chosen lake and select any other information you know about the location of the lake. Click Search. Then click on the name of your lake to move forward.
2. A bunch of information about your lake will come up - lake size, location, etc. At the bottom are links to more information. Click on the Water Quality picture.
3. Click on List by Data Set. From the list, click on secchi data.
4. When asked which fields you would like - Check off: Sample Station & Secchi (m)
5. Then select to Order Data by Date. Click on Submit.



Data will be displayed and you have the option to download the data in two ways:

1. The easiest thing to do is click the "end" button to get the most recent data page. Then you can copy one summer's worth of data (usually May through Sept.) and paste into your excel or appleworks spreadsheet. Here is an example of the pasted data.



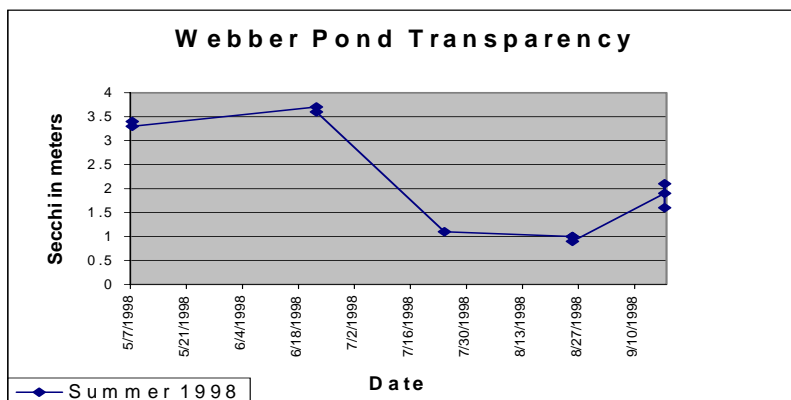
Webber lake

Date	Station	Secchi m
5/7/1998	1	3.4
5/7/1998	1	3.3
6/22/1998	1	3.7
6/22/1998	1	3.6
7/24/1998	1	1.1
8/25/1998	1	1
8/25/1998	1	1
8/25/1998	1	0.9
9/17/1998	1	1.9
9/17/1998	1	2.1
9/17/1998	1	1.6

2. If you are going to download the entire data for that lake, make sure "Zipped CVS file" is selected. This works best with PCs. Then click download. The file will be in a WINZIP format for Excel. If you Click on Open when you are asked to open or save, a window will pop up for WINZIP and ask you if you agree to their terms of agreement. Click "I agree." You will see a window with a really long file name (ex. scdrscdrjchjmnocnidkccnampbomfh.zip) Double click on the file to open it. It will open in Excel. Before manipulating the data to graph it, save the file with a new name (ex. chinasecchi.xls) Use Save As and make sure to change the file type to save as .xls (or whichever version of excel you are using).

Part 2 Graphing Data

1. Look at the data you are given and see what is available. You should notice the sample station # listed, the date when data was collected, and the actual data reading for that date.
2. You want to graph data from the most recent summer to get an idea of what might happen this summer.
3. When you graph data, you want to make sure that it has all been collected in the same place - or at the same sample station.
4. Then, you need to graph the secchi depth measurement (y-axis) vs. the date (x-axis). Make sure you label the axes and give the graph a descriptive title. Your graph might look something like this:



Questions to answer Part 2

1. How did the water clarity change throughout the summer? (Remember a larger secchi disk reading means you can see deeper into the water.)
2. Was there an algal bloom? if so when did the algae bloom occur?



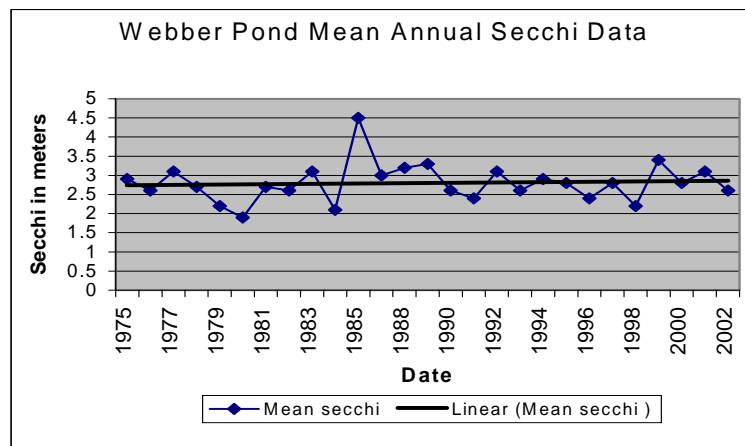
3. When is the best time to take your family vacation? (Make sure you consider what the water temperature might be like. You can look at data for temperature on PEARL.)

4. What factors affect water quality? (Use the glossary and "what does it mean?" sections of PEARL)
5. What can you do to protect water quality in your favorite lake? (See DEP web site <http://www.maine.gov/dep/blwq/doceducation/nps/prevention.htm>)

Part 3 Annual Data

Now that you have figured out what the water was like last year, how do you know it will be the same this summer? Will one year's data be enough to predict this summer? Let's find out if the overall water quality of your lake is getting better or worse over time. Here's how:

1. Head back to the Water Quality Listed by Data set and click on "pH, Alkalinity, and Secchi Summary Data." Select - "Sample Station" & "Secchi, Mean"
2. Order by date, and click on submit. Copy and paste or download the data as a CSV file. Open with Appleworks or Excel, as before.
3. Graph the yearly mean secchi data (y-axis) vs. year (x-axis). Label axes and give graph an appropriate title. Your graph might look something like this:



Questions to answer Part 3

1. What does the graph for the history of your lake's water clarity tell you? (You may want to add a trendline to the graph to help you figure out what is happening. Click on the data points to highlight, right click and select trend line. Choose linear.)
2. Compare this graph over the years with your graph from last year. Was last year an average year?
3. What new questions does this raise?
4. What else would you want to know to decide if the water quality of the lake is improving or declining?



Final Presentation to the class

Using the graphs and what you learned from this activity give a persuasive presentation about where and when to take your lake vacation. You may want to consider other variables like travel time, fishing, public access to beaches, boat ramps, other attractions in the area, camping, and accommodations options.